The Stories They Tell

Name: _____

Date: _____ Score: _____

Background: Our understanding of evolutionary history is based in part on the study of bones. In this activity you will examine bone sets of the upper limbs of several different mammals. Your task is to try to identify the animal that each set of bones came from. Do the structure and pattern of the bones reveal anything about which of the animals may be related? What do the bone structures and patterns tell you about their function?

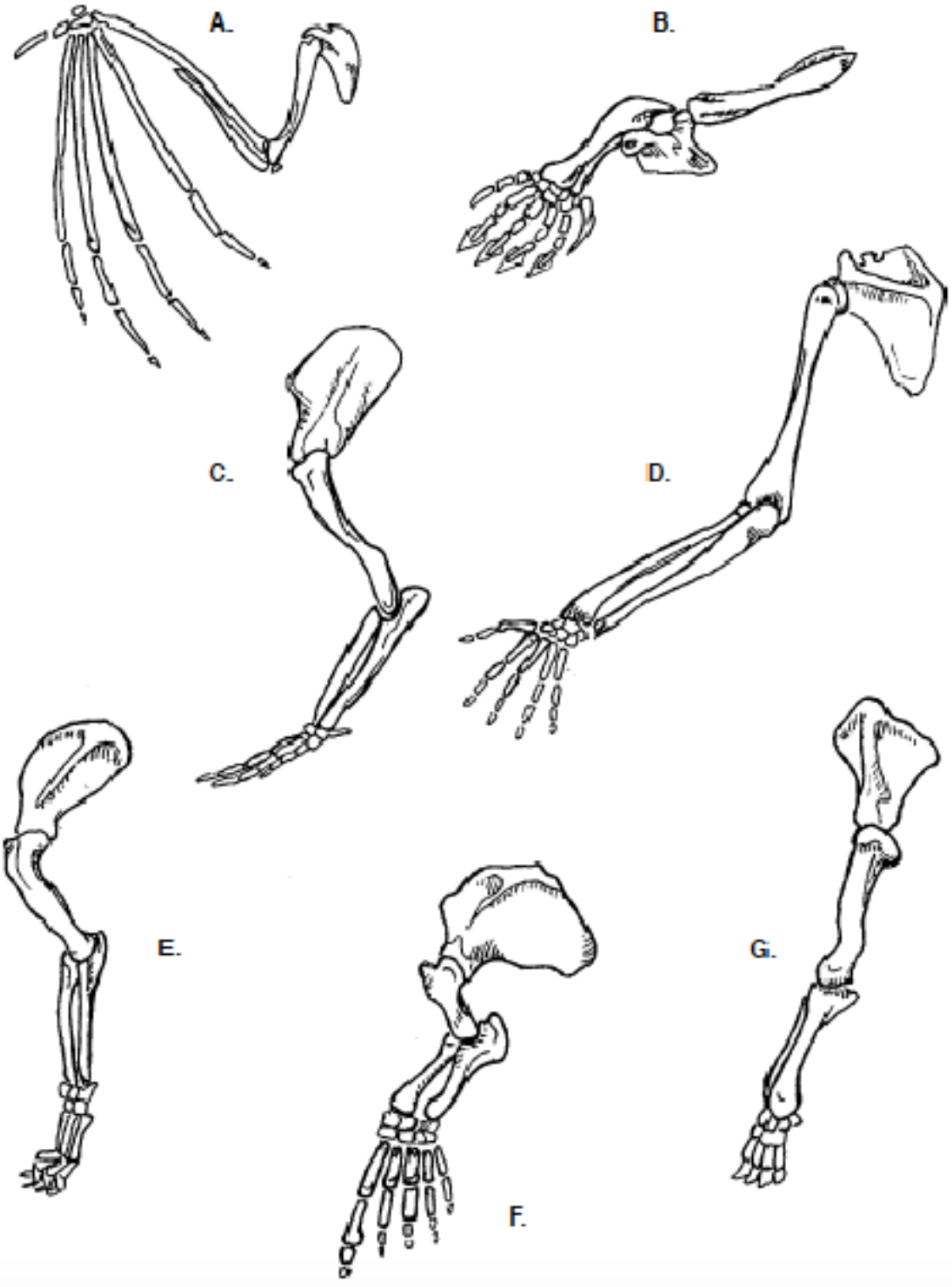
Procedure:

Part 1. Carefully examine the bone structures on Lab Sheet 1. (Note: bones are not drawn to scale._ All are forelimbs of mammals. Look for key structural features that give tell-tale clues about which mammal the bones are from. Fill in the missing information based on your observations in the table below.

Bone Set	Key Structural Features	Proposed Animal Source
A		
B		
C		
D	five separate digits or fingers; hand-like structure; long, thin upper and lower arm segments	human
E		
F		
G		

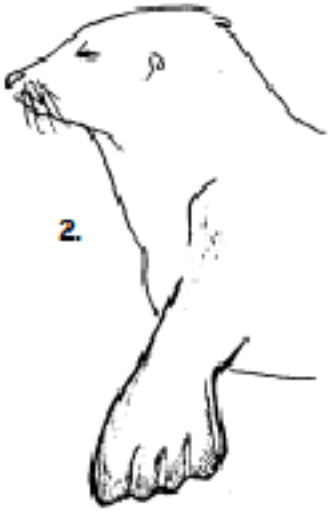
Part 2. Examine the skin and/or fur-covered limbs on Lab Sheet 2. These limbs are from the same seven mammals whose bones you studied in Part 1. Describe the relationship between each limb structure and its normal function. For example, number 1 is a mole. The mole's forelimb is structured with short, strong levers and sharp claws for digging (since the mole lives underground). Name each of the other mammals and similarly describe the relationship between the structure and the function of their forelimb.

Lab Sheet 1

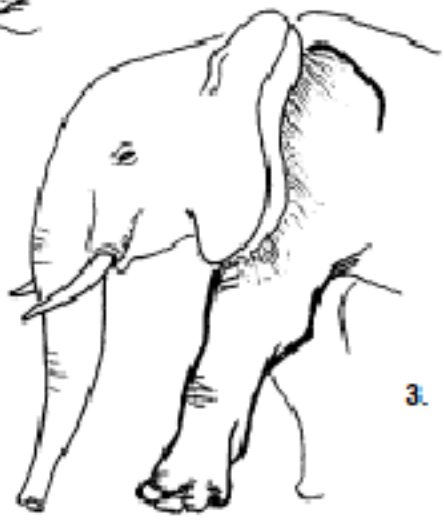


Lab Sheet 2

1.



2.



3.

4.

5.

6.

7.

Analyze and Conclude:

1. In Part 1, which of the bone sets were hard to identify? Explain why.

2. Describe any similarities seen among the bone sets to these seven mammals. Be as specific as you can.

3. Considering the illustrations on Lab Sheet 2, propose a general statement explaining why the limbs of these seven mammals show such different outward appearances while maintaining the similarities seen in the bone structures and patterns seen on Lab Sheet 1.

4. Create a phyletic tree showing how these organisms could have come from common ancestors. (Hint: Did they all come from the same common ancestor?)